THE UNIVERSITY OF SYDNEY

Ritchie Lecture 2025

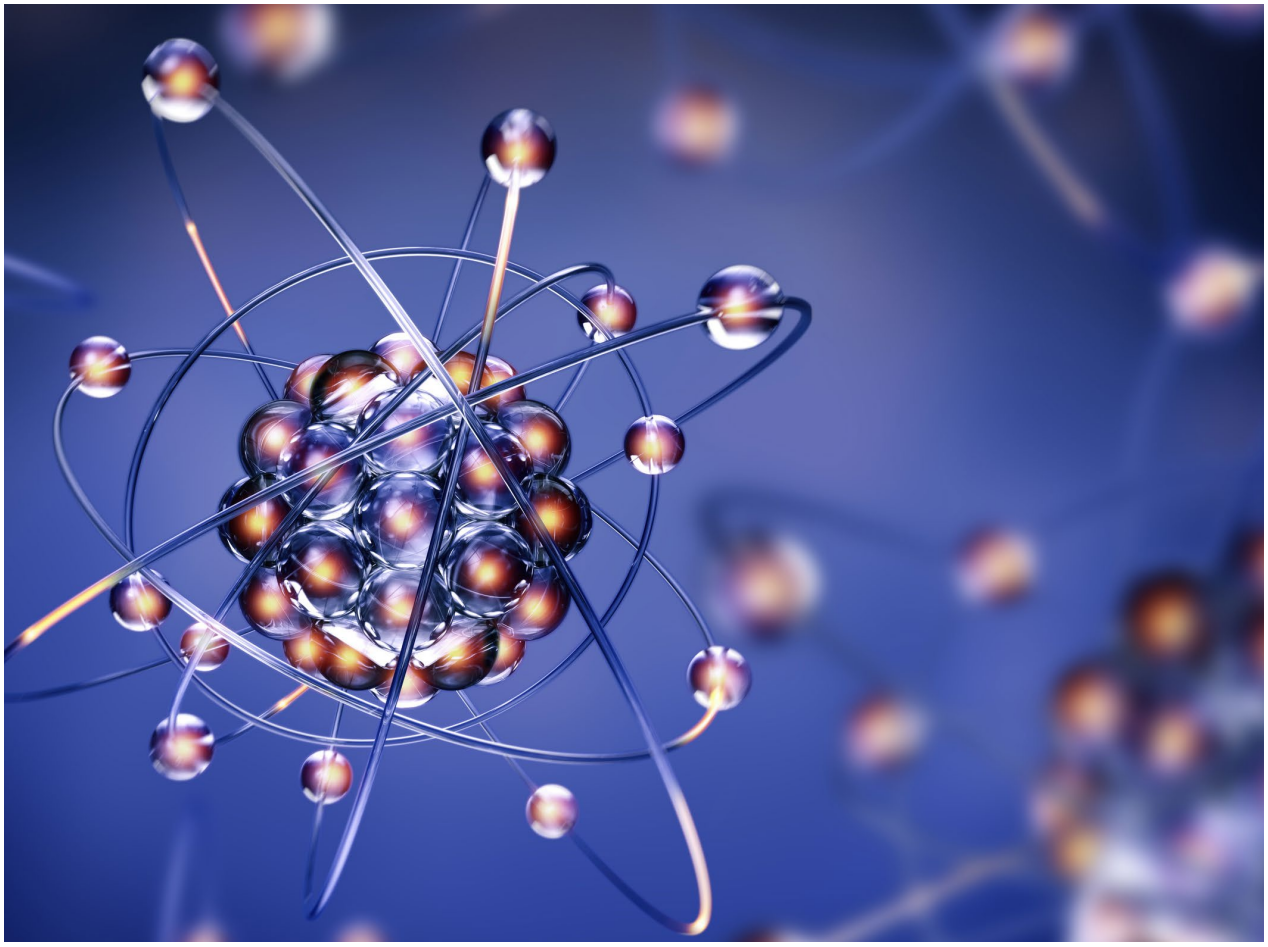
Professor Michelle Chang

Friday 22nd August 2025

Lecture Theatre 1

About the Ritchie Lectureship

Ernest Ritchie, Professor of Organic Chemistry at the University of Sydney from 1967 to 1976. He had a long and distinguished career in the Department of Organic Chemistry starting in 1941. Whilst best remembered for his contributions to the chemistry of plant products, his scientific interests embraced other areas, notably synthetic chemistry and biogenesis. Above all, he had remarkable human qualities of honesty, sincerity and kindness, and inspired a generation of Australian organic chemists. To commemorate his life and work, the School of Chemistry launched a memorial appeal to support lectures by distinguished visitors to be given at the University of Sydney under the auspices of the Sydney University Chemical Society.



Professor Ernest Ritchie

Ernest Ritchie, born in Sydney in 1917, was a prominent organic chemist known for his significant contributions to research in synthetic organic chemistry. Ritchie graduated from the University of Sydney with first-class honours (1937), where he worked alongside of John Cornforth, Arthur Birch, Rita Harradence and (Sir) Ronald Nyholm.

Under the guidance of Francis Lions, Ritchie obtained a Masters in heterocyclic chemistry in 1939. He later became interested in natural product chemistry where he isolated and characterised constituents of Australian flora. In particular, a decade-long study of alkaloids from the Queensland genus, Galbulimima, gained widespread recognition.

Ritchie remained at the University of Sydney for his entire academic career. He was awarded a DSc *honoris causa* in 1954 and became a Professor of organic chemistry in 1967. As the Head of School at The School of Chemistry in 1971, Ritchie made several significant contributions to the school, including changes in committee structure to allow all school staff to inform policy development.

His significant contributions to organic chemistry earned him many prestigious awards, including the Edgworth David Medal and the H. G. Smith Medal from institutions including the Australian Academy of Science and the Nuffield Foundation.

Outside of his academic pursuits, Ritchie was described as a down-to-earth individual who enjoyed the simple pleasures like gardening, fishing, and spending time with his family. Despite his sudden passing in 1976, Ritchie's legacy endures through his extensive academic achievements, and his dedication to chemistry.

Previous Lecturers

1977	Sir John Cornforth* (University of Sussex)
1978	Arthur J. Birch (Australian National University)
1979	Phillip R. Jefferies (University of Western Australia)
1980	Sir Derek H.R. Barton* (CNRS)
1981	Jack E. Baldwin (University of Oxford)
1982	Donald J. Cram* (University of California, Los Angeles)
1983	Kurt Mislow (Princeton University)
1984	Elias J. Corey (Harvard University)
1986	Lewis N. Mander (Australian National University)
1988	Andrew S. Kende (University of Rochester)
1992	J. Fraser Stoddart* (University of Birmingham)
1998	Wal C. Taylor (University of Sydney)
2000	Larry Overman (University of California, Irvine)
2002	William R. Roush (University of Michigan)
2006	Andrew Holmes (University of Melbourne)
2011	Amos B. Smith, III (University of Pennsylvania)
2012	Dale Boger (Scripps Research Institute)
2013	Dirk Trauner (University of Munich)
2014	David Chen (Seoul National University)
2015	Chris Vanderwal (University of California, Irvine)
2016	J. Stephen Clark (University of Glasgow)
2017	Corey Stephenson (University of Michigan)
2018	Christopher J. Schofield (University of Oxford)
2022	Tom Muir (Princeton University)
2024	Herman Overkleeft (Leiden University)

* = Nobel Laureate

Professor Michelle Chang

Princeton University

Michelle C. Y. Chang is the A. Barton Hepburn Professor of Chemistry at Princeton University. Renowned for her pioneering work in biosynthesis, she has received multiple early-career awards for her research on biofuels and pharmaceuticals.

Michelle earned dual degrees in biochemistry and French literature from UC San Diego, followed by a PhD from MIT, where she studied radical transfer in ribonucleotide reductase enzymes. Following graduate school, she conducted research as a Jane Coffin Childs Memorial Fund for Medical Research Postdoctoral Fellow at University of California, Berkeley with Jay Keasling. At UC Berkeley, she began her independent career in 2007, focusing on enzyme engineering and synthetic biology. In 2024, she joined Princeton University, where her research continues to explore biocatalysis, natural product synthesis, and metabolic engineering.

Abstract

Discovery and engineering of new enzymes for biocatalysis

Living systems have evolved the capacity to carry out many chemical transformations of interest to synthetic chemistry if they could be redesigned for targeted purposes. Our group is interested in the discovery, characterization, and engineering of new enzymes for biocatalysis.